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ABSTRACT

The articles comprising this bulletin report the status of research methods in the English language arts and indicate promising directions for further effort. Ralph C. Staiger discusses the range of language arts research and points out the strengths and weaknesses of various research techniques. Theodore Clymer examines the essential characteristics of research design, indicates ways to improve it, and discusses typical methods of language arts research. Samuel L. Becker reviews and evaluates research in the instructional use of mass media, particularly television. Carlton M. Singleton outlines needed further research and discusses the problems of securing cooperation from students, teachers, administrators, and the community which supports the research. Singleton, Paul B. Diederich, and Walter Hill, in a joint article, emphasize the necessity for the classroom teacher to conduct research and to try new ideas which could lead to more effective instructional techniques. (LH)

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Research Methods in the Language Arts

Prepared by the National
Conference on Research in English

CARLTON M. SINGLETON, *Chairman*
RALPH STAIGER
THEODORE CLYMER
SAMUEL BECKER
PAUL B. DIEDERICH
WALTER HILL

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PREFACE

The purpose of this bulletin of the National Conference on Research in English is to study the status of research methods in the English language arts and to indicate promising directions for further effort. The bulletin is particularly appropriate at this time since it follows so closely the publication of the Third Edition of the Encyclopedia of Educational Research. The Encyclopedia's articles concerning the varied aspects of the teaching of English indicate very clearly that while research has told us many interesting things about the ways in which people learn their language, little has been discovered or demonstrated which tells us better ways to teach that language. The time is upon us for a vastly increased program of research in the teaching of English.

The bulletin is addressed specifically to three audiences: members of the profession who are conducting research in English; beginning graduate students contemplating their first study; and classroom teachers everywhere who should be using research findings and research techniques to improve their teaching of English.

The first group will find discussion of new techniques, reviews of promising new measures; a review of mass-media research, and suggestions for needed studies.

Beginning graduate students will be interested in the above and also in the discussion of typical research designs and a chapter on securing willing cooperation in research.

The attention of classroom teachers should be directed specifically to the argument for the classroom teacher as a researcher. The rest of the bulletin should have appeal as an explanation of research—its techniques and its importance.

The 1961 Yearbook Committee

Ralph C. Staiger

Research in the Language Arts

"Why, I'm still learning how to teach. I can't tell others how." This was the reaction of an experienced "specialist" whose advice had been asked on a language arts problem. His honesty was refreshing. It was also disconcerting in light of his years of experience and knowledge of the research in the field of the communications arts.

The teacher of language skills whether of first grade reading, high school composition, or college English, has available the fruits of fifty years of research concerning the content, the methodology, and the philosophy behind his work. Yet criticism of the product of his teaching was never more widespread and doubts as to the effectiveness of his teaching must inevitably be his companion.

The 1960 edition of the *Encyclopedia of Educational Research* carries a total of 969 references in the related fields of English, reading, spelling, speech, and the communications arts. An additional 414 references can be added to this total if the areas of literature, handwriting, language development, English as a second language, and bilingualism are included.

Why, then, was our specialist, who is familiar with these studies, reluctant to give advice? Was he unwilling to take the research studies seriously? Probably not—rather he fully understands how little has actually been learned about the complex area of language skills teaching. For instance, although Hitchcock (5) suggested in 1927 that a student learns language skills best when he is constantly placed in situations in which he needs to communicate with others through writing or speaking, Searles and Carlsen (10, p. 463) in their research summary thirty years later admit ". . . there is little documentary evidence to support the contention . . . Even so, most experts in the field have supported this approach."

Knowledge gaps such as this are not uncommon. The language area is in the relatively young and undeveloped social and psychological sciences.

The educational researcher works in the area of mental processes, which, unlike many elements in the physical sciences, do not hold still long enough to be analyzed. For example: it would be useful to know the size and makeup of the average child's vocabulary at each grade level, yet the vocabulary estimates we work with range from an estimate at age 6 of 2500 words to another *ten times* that size. When we add to this the confusion engendered by the fact that the child's school vocabulary might very well be different from the one he uses at home and that we cannot even for purposes of experimentation control the new words he learns, we begin to realize why research can be so difficult and why we do not have complete answers to most of our questions.

The most work has apparently been done in the reading area. Gray (4) lists 412 significant studies in his encyclopedia summary of reading research, and indicates that over 3680 reading studies have been published in the United States and England since 1880. Even so, our knowledge about reading substantiated by verified fact is still far from satisfactory. At a recent two day meeting of reading research specialists, a group of six persons, members of the

Dr. Staiger is Director of the Reading Clinic, University of Southern Mississippi, Hattiesburg, Mississippi.

National Conference on Research in English, scrutinized the field and selected eighty-eight important problems which require study.

Russell (9) selected from the literature ten studies which, in his opinion, had the greatest influence upon the teaching of reading. These classic studies were important and their influences great, but each opened many doors to further investigation.

Other areas of language learnings have also been studied. If encyclopedia references can be used as a criterion of intensity of study in the various communication areas, reading is followed by the teaching of English with 218 references (10) and spelling, which has 217 studies listed (6). Speech has 69 citations (7) and communication arts lists 53 (3). To a certain extent, the relative newness of a field is reflected in the number of encyclopedia references.

The number of studies, however, does not necessarily indicate the significance of the knowledge gained, nor of any particular study. Many of the early works are inadequate when viewed in the light of later developments in treatment of data. Many comparative studies, for instance, which indicate differences between experimental and control groups were conducted before tests of the statistical significance of differences were devised. Although differences are evident, we cannot be sure that these differences were caused by the method used. They might have been occasioned by chance, alone.

TYPES OF STUDIES

Most research studies in the communication areas are either normative surveys or experimental in nature. Relatively few historical studies have been reported, although some would be useful contributions. Since most of the studies use some kind of statistical treatment, perhaps it would be useful to suggest a sequence of utility for prediction of the statistical techniques used in these studies. If the idealized objective of science is prediction, the more useful for prediction a study is, the greater its contribution.

Description. Least useful for prediction are the descriptive studies. In them, the investigator attempts to describe a program or a situation. Miss X discusses procedures used with a given class, indicates materials used and her observations in terms of standardized tests and informal behavior. She has done a good job of description from which Mr. A may get some pointers for his teaching, but Mr. A cannot be certain that his class will react in the same fashion, or that Miss X's techniques will work with any group other than the original class. If an experimental treatment is described, but no comparison with a control group is offered, we cannot draw any conclusions about the value of the procedure.

Simple Comparison. The statistical tool at the next stage of usefulness for prediction is simple comparison. The success of an experimental procedure is compared with the unchanged procedure, called the control. If similar groups of children, for instance, are taught grammatical principles by diagramming sentences and by a motion picture presentation, which group will learn most about grammar? When a test is administered, one group scores slightly higher than the other. Is this proof positive that this technique is best? We must examine the difference between the final test scores. Is this difference really great enough to draw conclusions about the superiority of one group over the other, or is it merely a chance difference?

Significance of Means. The greatest weakness of many comparative studies is their failure to subject their results to a test which will indicate whether the differences found are due to chance, or are statistically

significant, and so dependable. In many cases, the investigator cannot be blamed, because no such test was known at the time his study was made. When such a test is applied, an interpretation of the findings can be made with a degree of certainty not possible when a rigorous evaluation of differences has not been made.

Correlation. Examining the interrelationships between phenomena has also been a profitable area of research. If the influence of radio listening upon school grades is being studied, the number of hours spent with the radio might be correlated with grade average for a large number of students. If the correlation is high, we might conclude that radio listening is related to high grades, or at the least is not related to low grades. Can we conclude that radio listening is the *cause* of superior school grades? No. The correlation technique merely points out the degree of apparent relationship, not the cause.

Analysis of Variance and Covariance. The use of analysis of variance or covariance permits the interpretation of data in a more useful way. The statistical significance of the differences between more than two variables can be studied. The interaction among variables can be analyzed, and many other comparisons made. These have proved to be extremely useful techniques and indicate a fairly high level of statistical sophistication.

They are especially helpful for testing the usefulness of a technique, for in addition to testing the interactions between many variables by means of a relatively convenient technique, experimental conditions can be simulated. For instance, if the efficacy of three different types materials in teaching reading skills to bright, average, and dull children is to be examined, the analysis of variance can be used to test not only the usefulness of each procedure on each group of children, but also indicate the differences between the bright, average, and dull children.

The analysis of covariance has rarely been used in language research, but it is extremely useful when a variable cannot be controlled experimentally, for practical purposes. If, for instance, the time spent in library-type reading for the three types of students mentioned in the last experiment was to be considered, as it probably should, an important factor in reading growth, but no stated time for such reading could be experimentally controlled, the analysis of covariance could be used to control the influence of this outside reading variable statistically.

Factor Analysis. The final type of statistical treatment which has been used in research in English, and one of the most difficult to utilize properly, is factor analysis. By use of this analysis, the components which are thought to make up a skill or ability can be tested for relative influence. Thus, the factors believed to underlie reading comprehension and spelling ability have been studied. Unfortunately, only those influences which are considered in the analysis are measured. Unknown factors are not identified. With the use of high speed computers, the calculation of these complex analyses has become more feasible.

Most of the studies upon which our knowledge of language skills teaching are based are rudimentary. They utilize descriptions, simple comparisons, and occasionally correlation. Careful scrutiny of the findings of many of these studies is necessary, and many should be repeated in terms of more meaningful statistical treatment.

ACTION RESEARCH

Recently, the term "Action Research" has been introduced into the field of educa-

tional research. This refers to studies done by teachers in their own schools or classrooms, conducted to satisfy the need to find out for oneself answers to problems. It is possible that the secondary purposes, however, have been fulfilled more successfully than this first. To an extent, teachers involved in new procedures as a result of action research become better teachers because of their involvement with new ideas. They become better acquainted with research and strive to use the scientific method in their own thinking and teaching. At the very least, they learn something of the time and energy which go into a research study, and look with greater respect upon the research worker and his findings.

These positive influences are balanced by weaknesses which conventional research workers have been quick to point out. Even though action research, they say, is called research, the limitations under which it is conducted nullify the conclusions of most of these "little studies." The sampling of the population is usually inadequate, the statistical techniques are on a low order of usefulness, and the controls are usually inadequate or lacking so that interpretation of the results is difficult, if not impossible. It is foolhardy to utilize the more sophisticated statistical devices mentioned above, they say, for the data do not merit them.

The greatest values of "action research" it would appear, are to liberate the teachers from the humdrum, "accepted" ways of teaching, and to enable experimentation with new ideas and new techniques in a limited way. The important by-products of this liberation are the fresh approaches which might result, and the possible interest in more rigorous research on the part of the action research worker. As a result of participation in small studies every teacher may not generate important new research findings, but she can easily become interested in the research attitude and more willing to help when a complex study requires her cooperation. And, in some cases, she might swell the ranks of the research workers whose life work is attempting to control the complexities of human nature and language in precise, predictable form.

WHAT NEXT?

Predicting the future is dangerous. But if we examine some of the influences being brought to bear on research, we can make some educated guesses.

Operationism has received much attention from educational philosophers. By forcing educational researchers to define terms in "if . . . then" sentences, they are being made to follow the rules followed by physical scientists for years. In the study of language and communication, the definition of terms has long been a major problem. Phonics has been one term which appears to have as many meanings as investigators. Writing can refer to handwriting, or to composition. If operationism does no more than make us define our terms more accurately, it will make a major contribution.

One way in which terms are defined is by the use of models. Unfortunately, the term itself is ambiguously used. A model can be a theory, speculative or quantified, or it can represent the similarity of the laws of one area in a different area. Brodbeck (1) has suggested, for instance, that the biological theory of evolution has been used as a model for social theory.

Research in the language arts has not yet been refined to the extent that operationism or models have been important. Perhaps this is one direction from which will come greater precision of thinking.

The theoretical basis for some of the most respected statistical techniques has come

under criticism, which might lead to important changes in research procedures. Rozeboom (8) and others have questioned the adequacy of the Null Hypothesis Significance Test, the basis for some of the more sophisticated techniques mentioned above. Replacing the forced decision-making of Null Hypothesis thinking, it is suggested, will be a more realistic use of probability in evaluating the post experimental credibilities of an hypothesis. Thus, an experiment will lead to an evaluation of an hypothesis rather than merely an acceptance or rejection.

How much these influences will change research is something we must wait to see. The complex nature of our problems cries out for better means of dealing with language research, and we should try everything which promises better and more usable results.

If the careful scientific study of language and communication skills is difficult, it must be remembered that the difficulties are gradually being overcome. The mosaics of which research is made are slowly being put in place. Each year brings new studies, some good, some weak from lack of controls, from inadequate measures, from an insufficient sampling of the population, or from techniques of statistical inference which do not fit the data.

The articles which follow in this series attempt to bring to the attention of the teacher and potential research worker some of the tools and measures which can help clear the mist in which language skills have been taught. It is not expected to be a compendium of research techniques, but rather a storehouse of ideas which will help the language-oriented research worker become more sophisticated about research thinking, tools, and devices. The average English teacher is not trained in methods of statistical inference. He is reluctant to venture into, for him, uncharted seas. This bulletin will not make him a master mariner in research but may help him overcome his fear of water.

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THEODORE CLYMER

Research Design in the Language Arts

Research in the language arts has increased steadily in quality and quantity since Rice (10) proclaimed "the futility of the spelling grind." The advances made in language arts instructional procedures since Rice's study have come in large measure from careful and thorough research.

The purposes of this chapter are to examine research in language arts and 1) to demonstrate why research must conform to certain characteristics 2) to illustrate some of the designs typically used in language arts, and 3) to indicate some ways in which research in this area could be improved.

Characteristics of Research Design

To illustrate some of the essential characteristics of research design, let us select a practical and typical problem of language arts research: Is method A better than method B in the teaching of spelling? The statistician, because of logical considerations, generally prefers to state the problem in terms of the "null hypothesis." In statistical language our hypothesis is stated in this way: "There is no significant difference in spelling achievement of students taught by methods A and B." Because we are seeking the same information as the statistician, we should grant him without prejudice his quaint—but to him essential—ways of stating hypotheses.

Dr. Clymer is Professor of Education, University of Minnesota.

Planning the Details of the Study.—Once the problem is clearly stated, a number of vital questions must be answered. It is not possible to list here all factors of concern for all types of studies, but for our study of spelling methods A and B, the following questions are of special importance: What is method A and how does it differ from method B? What procedures will ensure that certain designated teachers follow method A and others method B? How will teachers be assigned to method A or B? How is spelling ability to be measured—by words studied in the experimental period or by words not previously studied? Is achievement in spelling to be measured by a dictation test, a proof reading test or a measure of words spelled correctly in daily composition? Should achievement be measured immediately after the experimental instruction ends or should a "follow-up" measure be used six, ten, or "x" weeks later? What characteristics (age, sex, intelligence, present level of spelling ability, socio-economic status, etc.) of the students should be studied and how should these enter into the design? These questions cover just a few of the many details to be considered by the experimenter as he plans his study.

The brief discussion above clearly indicates the need for careful planning of all details of the design. The seemingly simple question, "Is method A better than B?" immediately raises a series of important questions which must receive careful and thoughtful attention. Some of the questions are related to the precision

of the experiment. Thus, no teacher under method A can use method B (or method C!). Some of the questions are related to the extent to which the experimenter may "generalize" (apply) his findings. For example, in our comparison of spelling methods A and B, if no follow-up measure is used (too often the case in language arts research), the experimenter cannot state to what degree the comparisons of achievement at the end of the experimental instruction will hold at some future date.

The experimenter, in setting up his design, meticulously avoids any possibility of "card stacking" in favor of one or another method. For example, teachers who volunteer for experimental projects tend to be select, and probably superior, teachers. Therefore, the experimenter cannot use volunteers for method A and compare the performance of the pupils of these classrooms to other "available" classes. Such procedures could easily tip the experiment in favor of one method or another. Similar problems may exist when teachers are assigned to methods by their stated preferences. A common error in such comparative studies is to provide an extensive in-service training program for teachers using the experimental method, but no help for teachers using the "traditional" approach.

Dolch (4), in commenting on design in research in reading, suggested six areas of concern: 1) Compare equal teachers working equally hard. 2) Compare pupils of equal natural ability and equal home influence. 3) Compare equal school time and emphasis. 4) Watch carefully size of class. 5) Beware of misleading averages, and 6) Watch for unmeasured results.

The design should be examined carefully to see that no possible claim could be made that in any way the design "forced" the answer secured by the study. This examination must take place before the experiment is begun. There is no correction possible for a poorly designed study once the data are collected. Professor P. O. Johnson of the University of Minnesota startled more than one graduate student with his recommendation for poor data collected from an inappropriate design: "Cremation."

To summarize our discussion of planning the details of research design, we can say that the design provides a fair, rational, and complete plan for answering a question or set of questions.

Problems of Sampling.—Another matter of grave concern in any research design is the sample of children, teachers, or content involved in the study. The statistician makes a clear distinction between the *sample* and *population* of a study. The population is composed of all members who constitute a group having certain characteristics. A population may be, for example, fifth grade boys of average or better intelligence enrolled in public schools of the United States—or informational books for children published in the United States during 1962. The resources of most investigators require that only a part of the population be studied. This part of the population selected for study is the sample. It is obvious that the findings of a study are restricted to the extent that the sample is truly representative of the population. If the sample is unique in various ways, the conclusions drawn from the research may be inaccurate for the population of the study. In our spelling study, for example, if our entire sample was drawn from fifth grades of suburban schools with superior teachers, our conclusions would not apply to "fifth grades in general." Our conclusions would be restricted to the population of which our group was a sample. In many studies the population represented by the sample is

unknown because of the way in which the sample was selected.

Samples which do not truly represent the population of which they are a part are called *biased* samples. Perhaps the most famous biased sample was drawn by *Literary Digest*, which predicted Landon's election over Roosevelt by a landslide. The sample of persons expressing preferences was drawn from listings in telephone directories—and in 1936 this sample was not representative of the total population who voted.

Analysis of the Data.—The analysis of the data collected in a study is a bewildering process for many who read the research literature in the language arts. In the space available here it is not possible to explore the mysteries of the contingency table, factorial analysis, partial regression equations, or any of the currently used statistical procedures. Such matters are better left to the standard texts in the field. Edwards (5) is a particularly good introduction. There are, however, several matters of data analysis that are general enough to all types of research so that they may legitimately claim our attention here.

First of all, the method of analysis must be determined prior to the collection of data. The design of the experiment and the analysis of the data must be planned as a unit. Certain analyses require that the data are collected in specified sequence or in a manner which ensures that valid estimates of the variation are obtained. Once data are collected there is no way to permit the use of certain analyses unless the data were correctly obtained. Often a critical evaluation in terms of method of analysis of the data provides fresh insight into flaws in the design.

Another matter of data analysis which deserves consideration is the statistical significance of the results. The terms "level of significance," "1% level of significance," and "5% level of significance" require careful explanation, for their meaning is often misinterpreted. First, it should be kept in mind that "significance" in the statistical sense has no one-to-one relationship to significance or importance in a practical sense. The science of statistics has as its base the certainty, probability, or odds which can be placed in statements. The term of "1% level of significance" refers to the certainty that the results or comparison under examination would come about through the action of chance alone. When a statistical test is recorded at the "1% level of significance," the results (to continue our illustration, the superiority of spelling scores of pupils taught by method A) would occur by chance alone only one time out of 100. When the 5% level of significance is achieved, the results would occur but once in twenty times by the action of chance alone. Levels of significance between 1% and 5% are often referred to as being in "the region of doubt"—for the statistician is a cautious fellow who generally refuses to bet, except on extremely good odds.

To put the matter another way, the level of significance refers to the repeatability of experimental findings. But keep in mind that because an experimental outcome is repeatable does not mean it necessarily has *practical* significance for education. An experimental program may produce, for example, a reliable increase in the students' spelling growth; yet the increase may be so small that from a practical point of view the extra cost in time, effort, and money to introduce the experimental program would not be warranted.

The true difference between the average of an experimental and control group is never known, of course. The differences obtained through experimentation are only estimates of what these differences are. It is possible, however, to determine two

limits within which the exact difference is likely to lie. These limits cannot be set with absolute certainty, but the limits can be set with a certain probability—say, .95. Limits can be found, then, that are almost certain to enclose the true difference. These limits are called confidence limits, and the probability (in our example, .95) is called a confidence probability.

Much more attention needs to be given to the estimation of confidence limits. We must not make judgments in language arts instruction solely on the basis of who won the race, but also on the basis of by how much the race was won.

Problems in Drawing Conclusions.—Conclusions or inferences drawn from research is a final characteristic of research design to be discussed here. Nowhere in research is it easier to "jump over the traces" than in drawing conclusions, inferences, and in making recommendations. Great care must be taken to limit the inferences and generalizations to those which 1) the study was designed to test; 2) the sampling permits, and 3) the findings support.

In the Hanna-Moore study of spelling (6), for example, an examination of the data from the original unpublished source (9), (on which Hanna and Moore based their published report) led this writer to conclusions which were the opposite to those claimed for the data. Such events make it important for the reader to take special care in being his own judge as to whether or not a study warrants the conclusions claimed for it.

Typical Research Designs

The methods of educational research can be categorized in a variety of ways: by the orientation of the person doing the research—psychological, sociological; by the technique of data collection—questionnaire, test, observation; by the degree to which the investigator manipulates the subjects or conditions—status studies and experimental studies. For our purposes status studies and experimental studies provide a useful dichotomy. In any classification of educational research, it should be kept in mind that the categories are simply useful means of grouping studies for discussion purposes.

Status studies refer to any type of investigation in which no attempt is made to manipulate the subject or his environment in such a way as to produce any permanent changes in the subject. The simple recording of conditions as they exist is the key characteristic of the status study. This recording may require testing, observation, or interrogation; but in no way does the investigator introduce new conditions or effects in an attempt to alter the characteristic of the subjects under study.

Four varieties of status studies can be identified, although these sub-types of status studies overlap. To some degree each may be considered a special application of the same basic approach. The four types are relational studies, cross sectional studies, longitudinal studies, and historical studies. The types are listed in the order of their frequency of use, as judged by this writer.

Status Studies

Relational Studies.—Ever since Galton originated the concept of co-relation and Pearson developed the product moment correlation coefficient, research workers have been busy plotting one educational variable against another. It seems likely that the correlation coefficient is the most frequently utilized statistical tool over the history of educational research. The research in language arts can claim its fair share of coefficients. Almy's study (1) is typical of the many reported in the litera-

ture. Almy attempted to determine the importance of children's experiences prior to first grade and success in first grade reading. Using teacher judgment as well as reading tests, reading ability was related to certain experiences prior to first grade as determined by retrospective interviews with parents and children at the end of first grade. On the basis of the correlations computed from her data, Almy concluded that certain experiences prior to first grade appeared to be valuable in the first grade reading program.

Relational studies have one major characteristic which is often forgotten. Because two factors are related, the conclusion cannot be drawn that one is the cause of the other. Also, it cannot be claimed that increasing the size of one of the variables will cause an increase in the other. Correlation does not indicate causality. One example should make this patently clear. Pichardson (11) reports a correlation of 0.98 between consumption of alcoholic beverages and teachers' salaries over a forty year period. Speculation on cause and effect in this instance is interesting, but it probably is not useful educationally.

Cross Sectional Studies.—Often in educational research it is desirable to know the status of children's language development at various ages, grades, achievement, or socio-economic levels. Cross sectional studies are often utilized to obtain this information. In this approach different samples of children are drawn at various ages; for example, at ages four, five, six, and seven years. A standard procedure is applied to each group of children to measure certain abilities; an average is determined for each group, and a general curve is drawn for development of the skill under study. The Templin (14) study of the interrelationships of certain language abilities of children is an excellent illustration of a recent use of this research approach.

The usefulness of this research design is dependent upon comparable samples being drawn at each of the levels being studied. An exceptional group at one level can easily distort the findings. Information on growth in language can be obtained by this approach, but norms or standards are also an outcome of this technique.

Longitudinal Studies.—Longitudinal studies provide information on the same type of problem as the cross sectional study. These two designs differ in that the longitudinal study utilizes the same group of children over a period of time. Here, instead of selecting different groups at various ages, one group is selected and measured repeatedly over specified intervals of time.

The longitudinal approach has one major advantage over the cross sectional study: Individual curves can be drawn which illustrate growth spurts and patterns of growth which are smoothed out and masked by the cross sectional averages. Loss of cases, however, is a serious limiting factor in longitudinal research. The mobility of children, particularly at certain socio-economic levels, is almost certain to restrict the sample to better than average subjects.

Loban's work (7), under a contract with the U.S. Office of Education, is one of the few recent attempts to utilize the longitudinal approach for securing information about language development through the middle grades.

Historical Studies.—Historical studies are nearly unknown in language arts. Where can an analysis of the history of methods of teaching handwriting be found? Who knows the content of spellers and the methods advocated in them over a long period of history?

American Reading Instruction by Smith (12) is an outstanding exception to our lack of historical studies in the language

arts. This work, long out of print, is indispensable to the understanding of present day instruction in reading. Careful reading of certain sections would enable us to avoid the excesses which are offered as "cure-alls" for each generation of young scholars. Other studies which analyze methods and materials are needed in all the language arts.

Experimental Studies

Experimental studies are of such variety and complexity that only a few major points can be made here. Many of the essential aspects of experimental studies were discussed under the earlier heading of Characteristics of Research Design.

Only through experimental studies can we establish cause and effect relationships and from these relationships make inferential statements. Status studies permit statements of what relationships or conditions exist, but an experiment is required to go beyond these descriptive statements. The implications of the needs in language arts research are clear when the great number of status studies is viewed in relation to the relatively few experimental studies.

Stanley (13) has expressed clearly the problem: "We badly need educational experimentation of the controlled variety. . . . We have shied away from designing and executing studies involving the manipulation of pertinent variables."

Perhaps the reason we have neglected such research is that it is extremely difficult to do well. Dewey (3) described such experimentation as ". . . a process of trial and error accompanied by some degree of hope and a great deal of talk."

One promising development in the field of experimental research is factorial design, which permits the effect of a number of factors to be investigated simultaneously (2). By this approach we can study, for example, the influence of level of intelligence, sex, and initial reading scores on progress in reading instruction. The single variable experiment of McCall (8) need not continue to dominate educational experimentation now that newer approaches are available.

Summary

An ancient recipe for rabbit stew begins, "First catch a rabbit." Research design begins in a similar way—for the first ingredient required is a problem to be solved. Once the problem is "caught"—not an easy process, as many graduate students will attest—the research design is simply a logical set of procedures carried out to answer a specific question or set of questions.

Defined in this way, research design is not an esoteric topic for professors whose teaching load is insufficient to keep them fully occupied; instead, research design is a matter of concern to all persons who seek answers to educational problems.

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CARLTON M. SINGLETON

Freedom to Research

The Problem of Securing Willing Cooperation

A common and persistent difficulty in conducting research is the failure to secure the willing cooperation of those who may be affected. Research efforts in a school directly or indirectly affect: students acting as controls and students in the experiment; other students and teachers in the school system; administrative personnel, including the school board; and parents of children concerned. Under certain conditions research may affect the whole school community.

It would be possible to compile a long list of research studies that have failed because of interference of one sort or another. Such interference has ranged from direct attack in the public press to the sabotage created by parents who say, "That isn't the way they did things when I was in school," and by the teacher who says, "This may be all right, but I like my way better."

The common attribute of such research failures is a lack of understanding of the general purpose of educational research and the particular purpose of the specific study.

Educational research is far more vulnerable to interference than is other research. Because education directly affects all, and because everyone has been educated to some degree, each person feels that he understands the process. Every adult feels reasonably certain about the kind and amount of schooling that is best suited to the young. Most adults view what goes on in the schools from the background of both an intellectual and an emotional association.

Experimental research in a school focuses attention upon the school. Such attention may be and generally is beneficial, but it can equally well be harmful if the research effort is little understood or is subject to misinterpretation.

The purpose of this article is to detail the steps and precautions that should be taken to insure understanding of the purpose of research in the school. Its primary thesis is that when all the persons who may be concerned, however indirectly, are properly informed, the research effort can go on unhindered. The discussion will be centered around the groups who may be affected. Since it is quite possible that broader participation in a research study may result if the recommendations are followed, ways of utilizing and encouraging this broader participation will be discussed.

The Students

Students, both those in the experimental group and those in the control group, are directly concerned in any research study. Those subject to the new method are, of course, vitally interested. Those who are used as controls, whether or not they are informed of the experiment being conducted, are aware that something is happening. The situation is indeed rare when a control group can be truly unaffected by a research study. How much this fact has led to faulty conclusions is open to conjecture. Certainly in many studies, the difference between experimental and control groups has been suspiciously low or

Dr. Singleton is Professor of English, Paterson State College, New Jersey.

suspiciously high. It is quite possible that those in control groups, knowing something was happening, have worked harder than normally. It is equally possible that the knowledge of an experimental method being tried has engendered a "don't care" attitude. In either case, the behavior is atypical. Since secrecy is practically impossible in a modern school, the policy of complete frankness is suggested. While frankness has its disadvantages, the primary one being that the research effort becomes a common topic, with the concomitant behavior changes, still, it is a better alternative than a doomed attempt to maintain secrecy.

Experimental procedures, together with the rationale behind the procedure, should be carefully and completely explained to all the students who are to participate either as subjects or as controls. The understanding level of the students should be carefully appraised and the explanation geared to this level. The effort to explain in understandable terms quite often pays dividends because it enables the experimenters to comprehend certain facets of the problem more completely.

Accompanying the explanation of the research problem itself should be an explanation of the purposes of all educational research. The primary purpose, simply explained, is to discover truth concerning the ways people learn. Such an explanation, given fully and frankly, makes possible full and complete motivation both for the experimental subject and the control. The subjects then become true participants, as interested in the study and its results and future implications, as is the experimenter himself. At the same time, the students must be cautioned that the research can be valid only when each student acts as normally as possible. That this "normalcy" can never be 100% assured is recognized in all studies.

The students in the control groups, understandably, feel somewhat left out of a research study. Consequently, it is much easier to secure full cooperation when an experimental design allows for switching the groups at a given point. Such a design may also be preferred because it may hold constant a greater number of variables. Usually such a design involves using the experimental method with one group for a selected time interval and with the other group for an equal interval. It involves an extra measurement at the time of the switch. Conclusions, then, are based on the gains made by each group under the alternate teaching procedures.

The basic suggestion of this section is that all students participating, either as subjects or as controls, be thoroughly informed of the purpose of educational research in general and the specific study in particular; that this explanation be developed in terms completely comprehensible to the students, and that whenever possible an experimental design be adopted which allows for using the new procedures with both groups consecutively. It is very probable that such an explanation and a widespread participation will result in more valid research.

The Teachers

Teachers are likely to be ambivalent towards research. On the one hand, they recognize the value to the profession of research findings; on the other hand, they sometimes infer in any attempt to try out new patterns an implied criticism of their efforts. At best these feelings result in a sense of insecurity concerning research. Some teachers tend to become over-anxious in their efforts to do their best for a

study; others, consciously or subconsciously, tend to hold back in their efforts.

The policy of secrecy is generally even less effective with teachers than with the students. Even the calm reassurance to the teacher of a control group that she is to go on doing what she has been doing is worse than useless because she may take this to mean that she is not good enough to try the new method and that the final results will show how poorly she has been teaching. Reassurance must take the form of a careful explanation of the purpose of research. This is even more important to the control teacher than to the experimental teacher. It may help to plan the control method as carefully as the experimental so that teachers are really inspired by both ideas.

Generally, a research study is strengthened by widespread teacher participation as early in the study as possible. The planning stage should not be completed before the total group has been consulted. The time spent by the leader in marshalling his explanation for such a review is time well spent. In the first place, the necessity for preparing such an explanation to a possibly hostile group forces the investigator to state his proposal as clearly and logically as possible. Such thinking is important. In the second place, the discussion which follows the explanation may benefit the proposal through resulting changes in procedure or design that stem from suggestions made by teachers from their years of experience in the area. A possible third advantage accrues to the benefit of education directly in that the time spent discussing teaching and research may develop understanding of the teaching process. The major benefit, however, is that every teacher becomes a knowledgeable participant in the study. Ideally, each teacher should be a willing participant, with all fears and suspicions allayed. While this ideal is not often realized in the face of strong convictions, striving for it should insure a workable minimum of reasonably objective participation on a "let's try it and see" basis. Unless such minimum cooperation is assured, sober second thought concerning the wisdom of attempting the study is indicated.

The general recommendation is that the teachers concerned, both experimental and control, be thoroughly informed, *at the planning stage*, of the purpose and methods to be employed in the proposed study; that when possible the advice and recommendations of the teachers be incorporated in the planning; and that willing and objective cooperation be sought. If such an attempt results in failure to secure cooperation the question of conducting the study should be reconsidered.

Administrators and Teachers Outside the Research

The chief administrator of a school is almost always informed, as a matter of course, of a research study under contemplation. Usually his permission has to be secured. Others on the administration staff are often equally concerned but are not always automatically informed. These include the superintendent's assistants, the supervisory staff, and certainly the school board. At times the first news a school board, and sometimes the superintendent, hears of a research study is from a reporter with a severely critical bias evident in his questions. If, in such a situation, the person questioned has to begin the process of inquiry, little can be salvaged. The reporter is free to castigate because the person who should know doesn't.

Equally harmful to the cause of research, although not intentionally so, may be the criticisms of teachers in the same school or

school system who are not concerned with the study but who hear about it indirectly. Under these conditions and lacking information, they may make comments that can be extremely harsh but which are listened to by laymen because they emanate from teachers.

Since secrecy as a policy is as impossible for the administrative staff and teaching staff as it is for the students and their parents, the policy of complete frankness should be followed. Before a study is undertaken, all members of the administrative staff, including the board of education, should be informed. The superintendent is usually empowered to grant permission for research studies, but it is incumbent upon both him and the researcher to make certain that the board is informed of the nature and anticipated effects of the study, since questions from the public will undoubtedly come to them. The rest of the administrative staff, particularly the supervisors responsible for the area, should be brought into the study as early as possible. It is usually helpful to have them aid in the planning, particularly in describing and prescribing the control method.

The teachers in the school system who are not participating should be informed of the study in as simple and direct a way as possible. If there is a regular news disseminating service, either a school system newsletter or system of bulletins, a factual report of the study is a legitimate news story for this service. If the school system supports no such regular service, then a similar report should be duplicated and made available to every teacher through some other means.

The basic policy is one of providing information. The administrative staff of the school system must be informed, because it is its business and responsibility to know everything that happens in a school. The teacher not directly concerned with a study should be informed as a matter of professional courtesy. The researcher has the responsibility of providing this information in as direct and simple a way as he can devise.

The Community

The community that supports a school system does so not only because such support is obligatory but because it feels a very real concern and interest in education. The community is more than the parents of the school children, it is all the people who reside, work, and take pride in their community. The entire community has a vested interest in education. They support it and they are either proud of the local school system or defensive about it, depending upon how it meets their idea of proper education. It is important, then, that the community be informed directly and correctly of things that are happening. Informed they will be. When the researcher does the informing, the information is correct. When the informing is done by rumor, the information is apt to be misleading or scurrilous.

The newspaper is the researcher's best means of reaching the community. An accurate statement of the study, as brief as possible, can be an object of pride to a community. The fact that the school is engaged in research seeking to make itself better is something for the community to be proud of. The recommendation is that the researcher enlist early the columns of the local newspaper for a brief but complete and accurate description of the research study. Newspaper editors are generally interested in the schools of their community and will ordinarily cooperate willingly.

The basic tenet of this article has been

that full disclosure of research studies should be made to all who conceivably would be interested or affected by a study. Experience indicates that secrecy is all but impossible. A policy of providing clear and complete information is the researcher's guard against critical and interfering gossip arising from misleading and partial disclosures. The researcher is urged to take definite steps to inform all students, all teachers, all administrators, all parents, and others in the community, of the purpose and nature of the study he is undertaking. Fulfilling this responsibility not only guards his freedom to research but can be expected to strengthen his study.

Samuel L. Becker

Teaching of English In the Mass Media

With the increasing use of mass media, particularly television, for instruction in English, it is essential that the research on such use be reviewed and evaluated as a guide for teachers and researchers in the area. Because the bulk of the recent research has been concerned with television, the focus will be upon research in this medium.

Until the advent of television, instructors in colleges and universities were distinguished in this field primarily by their reluctance to use any of the mass media in their classes. The rapidly rising enrollments which accompanied the maturation of television, coupled with the lure of research money from the Fund for the Advancement of Education and the U. S. Department of Health, Education, and Welfare, has caused this situation to change. For example, since 1954 the television medium has been utilized for formal campus instruction in English composition at San Francisco State College (26), Purdue University (23), New York University (14), and the State University of Iowa (2). English literature has been taught via television at New York University (20), Los Angeles City and Valley Colleges (12), and the State University of Iowa (3). Courses in speech have been taught wholly or in part by television at Pennsylvania State University (16), the State University of Iowa (3), the University of Illinois (8), the University of California at Los Angeles (4), Wayne State University (11), Los Angeles City and Valley Colleges (12), and the University of South Dakota (24). Innumerable colleges and universities have telecast such courses to the general public.

Television programs specifically produced for English or speech instruction in the public schools have been tried in Evanston (Illinois) (6), Schenectady (New York) (1), St. Louis (13), Dade County (Florida) (10), Washington County (Maryland) (9), Lincoln (Nebraska) (15:62-65), Detroit (15), San Diego (25), New York (21), Philadelphia (22), Norfolk (Virginia) (17), Southwestern Indiana (27), and Oklahoma City (18). These, of course, are only a sample.

There are many ways in which we could categorize the research which has been done on the above in-school uses of television. Because the most fruitful research in the long run tends to be that which focuses upon important educational goals, we will examine recent research according to what it tells us of the ability of the television medium to contribute to the attainment of some of the major goals of English instruction.

Reading

In the area of reading, the research evidence indicates no consistent differences between television-aided instruction and conventional instruction for either secondary school or college students. Scores on a literature test for students taking a television-correspondence course in twelfth grade English in Nebraska did not differ significantly from scores for students taking

Dr. Becker is at the State University of Iowa.

the course in conventional fashion. However, significant differences were found favoring non-television students on a Mechanics of English test and an English Comprehension test (15). In Washington County, Maryland, where reading was taught to elementary students in the first through the third grades with the aid of television, the children *reported* that television helped them to learn better (9:17-18). At Evanston, Illinois, where television-supplemented instruction in English-speech was given to tenth grade students, the researchers reported that test scores of the experimental students on ability to read and interpret a short story were "about like the scores of a group of students with comparable I.Q. scores in regular English classes" (6:20). The State University of Iowa found no significant differences in the reading rate and comprehension of freshmen taught Communication Skills in part by television recordings and those taught in more conventional ways (2:14). Oklahoma City reported no significant differences between television and control students in American Literature classes on comprehension and appreciation or interpretation of literary materials (19:10). When Modern Literature was taught in part by television to college students at Iowa, no significant differences in learning were found when the television students were compared with either small discussion sections or with combination lecture-discussion sections of the course. The criterion measure was an essay examination on the knowledge and understanding of literature (3:20-21). New York University found no significant difference in the literary comprehension of students taught English partly via television and those taught in conventionally small groups (14:18). In an early study in which The Literature of England was taught in part by television at New York University, the tentative conclusion from a comparison of course grades was that "the A and B students profited about equally from the two kinds of learning situations; that the average and poorer students . . . may have learned better (from the televised instruction)" (20:26). Los Angeles and Valley Colleges found no significant differences between students who received Introduction to Literature instruction by television and those who received it in other ways (12:12-13).

No television studies were found which compared groups on the basis of skill in outlining, literary appreciation, or acquisition of criteria for evaluating literature or public address.

Listening

Instructional television research which seemed to consider listening as a course goal was even more sparse. At Evanston, it was found that the scores of television students on the STEP Tests of Ability to Listen were not significantly different than for other English students with comparable I.Q. scores (6:20). It was also reported that television did not "prevent the growth of a wide range of interests in the activities of the course" at Evanston. These activities included literature, theatre, and the media. This interest was checked by means of questionnaires and attendance at plays (6:21). At Detroit, it was found that students who had received instruction in American Literature by means of television scored significantly higher on a listening test than did those who received their literature instruction in a more conventional manner (15:49). With freshman Communication Skills students, Iowa found no significant differences between television-kinescope students and control students on gain in listening ability (2:14). In Dade County, Florida, senior high school students indicated that note-taking was more difficult at first and they had to listen

more intently in television courses than in other courses (10:45-46).

None of the reported television studies indicate a concern with student gain in comprehension or appreciation of dramatic forms, or in acquisition of criteria for evaluating what is heard.

Speaking

Five studies were found which were concerned with systematically testing the effects of teaching speech-making by television. At Evanston, television students made "generally adequate progress in the . . . ability to speak effectively" and "liking" for and "self-confidence in doing so." However, the television students were more often rated lower "in aspects of speaking related to content and thinking" (6:20-21). At Pennsylvania State University it was found that "there was little difference" between the grades earned by students receiving part of their basic speech course instruction by television and those receiving all of it in conventional ways (16:4). At Los Angeles and Valley Colleges, where experimental students in Public Speaking and Voice and Diction received one-third of their classroom instruction by television, no significant differences were found in the speech tests of these and students receiving all of their instruction in regular classes (12:12-13). At Iowa, no significant differences were found in speech ratings between students receiving the principles of communication from television recordings and those receiving comparable material from their regular classroom instructors or from readings (2:14). A somewhat unique use of television for speech instruction was tried at the University of California at Los Angeles. In an effort to improve physical delivery, each student was permitted to view himself on a television monitor while delivering three speeches. The researchers reported that "the TV monitor as employed did not lead to greater than normal progress in skills of physical delivery" (4:128).

No studies involving the use of television for speech instruction have reported an evaluation of student achievement in recognizing the social and psychological factors involved in communicating with people of different backgrounds, or in knowledge or practice of discussion with its accompanying interpersonal problems. However, in regard to the latter, the researchers at Hagerstown have reported some pertinent findings from non-speech courses taught by television to sixth and eighth graders.

A preliminary investigation of group structure was made using sociometric techniques in sixth and eighth grade classes in television and non-television schools. The study revealed that group structure seems to change with television resulting in fewer "isolates" . . . (The) type, frequency, and direction of participation seems to change in the television classroom. The traditional pattern of teacher-student participation, in which the classroom teacher asks questions or gives directions and the pupils respond is altered. The teacher on the television screen seems to upset this pattern. The students respond to him and then project or transfer their discussion to other students in the classroom and a natural give-and-take situation is encouraged. Some students who took little part in classroom activities prior to the introduction of television were now taking an active part in the discussions that followed the telecasts (9:18).

Writing

More research appears to have been done on the teaching of writing by means of television than the teaching of any of the other skills of communication. Experiments have been reported on three college and two high school courses in which at least one of the goals was the teaching of Eng-

lish composition. Results of an experiment with a composition course at Purdue University indicated that conventionally taught students tended to achieve slightly better ratings on their test themes than students who received two-thirds of their instruction by television. The results, however, were not consistent nor was a consistent pattern found between level of student ability (as assessed by the freshman orientation English test) and achievement in theme writing (23:12-17). At New York University, where the experimental students received three-fifths of their English composition instruction via television, inconsistent results were again obtained. When student achievement in theme writing was tested for each of three levels of initial theme writing ability, it appeared that television instruction may have been somewhat more effective for the low ability students while conventional instruction may have been more effective for the high ability students (14:16-17). This is in contradiction to some educational research which seems to indicate that, if method of instruction makes a difference, it is usually for the low ability students (and not for those of high ability). In the Iowa experiment, in which somewhat less than one-fourth of the instruction in Communication Skills was by means of television recordings, no consistent differences were found between the television and non-television students in achievement in theme writing. Neither was a significant interaction found which would indicate that students of differing academic ability were affected differently by the various means of instruction (2:14-15). In the English-speech course taught partially by television at Evanston, students made "at least as high marks" on written composition tests as non-television students in the preceding year, "and at least as high and perhaps higher marks than might have been expected on the basis of I.Q. scores" (6:19-20). Television students appeared to do somewhat more poorly than other tenth grade English students on the Mechanics of Expression test in Oklahoma City (19:11). No significant difference on the language arts examination was found between television and non-television students in Philadelphia (22:21). Only one published report was found by this writer of a controlled experiment on the teaching of English by television in which no supplementary instruction was carried on in the school. Ninth-grade English composition was telecast to two St. Louis public schools for thirty minutes a day, five days a week for one semester. There were 122 students viewing the broadcasts as a group in one school, 146 in the other. "One experienced teacher was in each room to receive assignments and meet any unforeseen occurrences —but not to teach in the usual sense of the word. She was assisted by a college graduate who was not a professional teacher." In addition, classes of 70 and 98 second-grade students viewed lessons in spelling for twenty minutes a day, five days a week, over a period of two semesters. Again an experienced teacher was in charge of each of the two rooms but did not teach. In English composition, "there was a suggestion that they (the television students) made slightly greater gains." In second-grade spelling, the television and the conventionally taught students "did equally well in a test of second-grade words, but when they were tested on words considered above the usual second-grade level, the conventionally taught students did better than those in the experiment" (26:34-35).

None of the television research on writing instruction appears to have included a consideration of such criteria as the ability to evaluate one's own work, motivation to write, or what might be called "writing

fright" (the counterpart of speech fright and probably at least as important a hindrance to effective communication).

Limitations of Existing Research

Let us summarize the weaknesses in the existing research on utilizing television in English instruction.

In no case was there sufficient control to enable effects to be attributed to a single cause and thus to be repeatable at will. There consistently have been more differences between the experimental groups and control groups in these studies than simply the presence or absence of television. There appears to be only one published report of a controlled experiment in which the televised instruction was not supplemented by more conventional classroom instruction, and the classroom supplementation of the electronic presentations has been different from the activity going on in the control classrooms at comparable times. Admittedly, optimum instruction by television involves a complex of factors but, in the experimental stage when we are trying to learn as much as possible about these phenomena, the wisdom of confounding these factors is questionable. Confounding the effects of the medium with the effects of supplementary activity makes it virtually impossible to determine what the effect of television per se has been. Also, because of this, where contradictory research results have been obtained, there is little chance to find the probable reasons for the differences.

Related to the failure to isolate variables has been the failure to repeat studies with comparable goals, students, and procedures. We are dealing with laws of probability in the social sciences and it is only through duplication of experiments that we are able to increase the precision of these laws. The fact that there has been *one* instance in which college freshmen were able to recall the principles of communication better or learned to write themes better when they received the principles of such communication from listening to a classroom teacher or when they received them from viewing a television presentation does not permit us to generalize with confidence about the relative merits of these media for communicating, even to college freshmen. One of the axioms which we learn early in experimentation is that anything can happen *once*. Until studies are repeated, we have little chance of developing laws for this type of classroom learning.

We have no evidence yet of the effect of television instruction over a long period of time, after a student has been receiving part of his instruction in this way over a four or five year period or longer and any novelty effect has been dissipated. Presumably, some evidence on this point will be forthcoming soon from Pennsylvania State University where a large number of courses have been taught by television since since 1954 (7) and from the five year study in Washington County, Maryland (9). There is some evidence scattered through the literature that students must learn to learn from television, that teachers must learn to teach by television, and that student attitudes toward televised instruction become more favorable with experience in receiving instruction in this way. All of these would seem to indicate that learning may increase proportionately with time. Whether these differences would be great enough to overcome loss of the novelty effect or whether these differences truly will be found to exist when they are isolated and examined systematically is not known at this time.

In the studies which have employed criterion measures other than simple retention tests, the kinds of measuring instru-

ments used tend to be unreliable. This makes it extremely difficult to obtain statistically significant differences between groups, even when there may truly be such differences. For example, methodological studies have consistently shown low reliability for theme and speech ratings except in those cases where an impractical number of raters was used or where the raters were given lengthy training in rating the specific phenomenon. This may well account for some of the many "no significant differences" found in instructional television studies. To improve our research in this area we must obtain more precise measurement, which means better measuring instruments and procedures.

Another important weakness of the research which has been concerned with using television for teaching English is that some of the major goals of such instruction apparently have been ignored in the evaluations. The requirements for meaningful research in instructional television are the same as the requirements for almost any sound educational research. One must begin with course goals, plan experimental conditions which one believes will best meet these goals, and then test whether these specific goals were obtained. Too often, a decision has been made simply to use television or, having television, to use it in some particular way. We plan our procedures and content for the course and then start to worry about how to test the effect of the procedures or the retention of the content. It seems a wasteful procedure to worry about whether students can be taught some sort of behavior better via television than via some other medium until we have some knowledge, or at least some testable hypotheses, about the way such behaviors are learned.

None of the above is meant to be a condemnation of recent research in instructional television. These investigations have contributed to our knowledge of learning and can contribute much more. The weaknesses of this research have been the weaknesses of the bulk of educational research. Television is an excellent means for observing what goes on in the classroom. It may prove to be the only means by which some of the more basic issues may be studied.

Suggestions for Future Research

So where do we go from here? What kinds of research most need doing? What kinds will be most helpful to us in understanding the ways in which television can be useful in English instruction? What kinds can help us learn to teach better? Classroom research conducted by the regular teacher is highly important at this point, because a great deal of the needed research in teaching English by television can probably be *best* done by the classroom teacher. Important contributions can be made in this area without large research teams or vast experience in research. One should have, however, a familiarity with the research which has been done, both on the teaching of English and on utilization of the media for instruction. One should also be able to describe accurately the conditions under which the experiment was done so that other teachers or researchers can duplicate the instruction or experiment and expect to come up with the same results. Most important, and generally most difficult, one should be able to approach the research with objectivity, a willingness to search for all of the facts and to accept them when they are found.

One of the kinds of research which can often best be done by teachers in the field is the duplication of experiments done in only one or two school systems. Until some of the teaching methods which have been

tried in one or two places are experimented with in many places, by many different teachers, with various kinds of students, and various kinds of school situations, we will have little idea of the applicability of the present findings.

Classroom teachers can also make important contributions to our knowledge of motivating students in English. If there is virtue in any usage of the television medium for instructional purposes, its use for motivational purposes would appear to be foremost. The professional researcher is well aware that learning and memory are dependent in part upon motivation. The question of the *specific kinds* of experience which will encourage students to write or speak better, or to read better books, can probably best come from the classroom teacher who has been faced with the problem of motivating various kinds of students and who has, in most cases, tried many types of procedures for this purpose and observed the results. Television provides an opportunity to try additional procedures or, possibly, to make some of the procedures tried in the classroom more effective.

Another kind of media research which often can grow out of the experiences of the classroom teacher is that which focuses upon the attitudes, skills, or knowledge which children have trouble getting from books or the usual classroom work. A knowledge of these problem areas, coupled with a knowledge of media research, should make it possible to come up with hypotheses about ways in which television or the other media can help to solve the problem. Once such hypotheses are developed and put in operational terms, the most important and difficult part of the research is done.

Though there has been a great deal of research comparing "conventional" (whatever that means) to "televised" instruction, little attention has been given to the problem of the best way to use television, or any of the other media, once the decision is made that there is something to be gained by media use. In spite of the impression one might get from reading the research literature, television is not a *method* of instruction, it is a *medium* capable of transmitting and being used with many different methods. An infinite number of studies need to be done to compare various methods of using television. Not only must various content and techniques of programming be studied, but various methods of integrating the televised material with other work in the classroom must be compared.

Whichever of these problems you decide to attack, start with some specific educational goals. Do not think in terms of the content of a course or courses. Decide what it is that the student should be able to do and know at the end of the year which he does not now. Try to make these goals as specific as possible. For example, do not say that the student should be able to appreciate literature. This cliche of the profession has little meaning to the teacher who wants to know what to teach or how to teach it and little meaning to the researcher who wants to find out whether it has been learned. Goals must be defined in terms of observable behavior. For example, you might decide that "appreciation of literature" means in part that, given a choice, a student will read T. S. Eliot instead of Bret Harte, or perhaps vice versa. Or you might mean that a student will voluntarily start reading more books, without their being assigned in school. Or you might mean that a student can indicate some of the basic insights of the authors whose works he reads. These are not necessarily good definitions of "appreciation of literature," but they are descriptions of behavior which can be observed objectively. Ob-

jectivity means, in this case, stating goals and measures as descriptions of behavior that can be counted or observed by any observer.

Once this is done, think of all of the experiences which may help students to reach the goals. Consider at this point not only what you have done in the past, or what has been done by others, but every possible experience which might be carried out in an ideal situation. It would appear that our educational systems will be undergoing dramatic changes in the next few decades. What seems completely impossible at this point may be quite practical within a very short time. In other words, this is the stage at which the most imaginative thinking needs to be done. There are many standard methods for teaching each aspect of English. On the other hand, it is almost certain that these standard methods do not exhaust the field, that there are methods as yet unthought of or, at least, untried.

Along with the experiences which may help students to reach the outlined goals, you must consider, obviously, the course content.

Once the goals, content, and methods are defined, you have the information needed to plan your experiment intelligently. For example, you will be able to see which methods cannot be carried out with conventional classroom instruction and which might be done with one or more of the media. You will be able to see which types of content are difficult to learn under present classroom conditions and how some of the media could be helpful. You will be able to see which goals are not now being adequately met and which may be if approached differently. I have explained elsewhere (5:23-29) a technique for making this analysis. The technique is essentially the formation of a three dimensional diagram with goals along one dimension, content along another, and methods along the third. Such a structure helps not only to solve the problems above but is an aid in devising measuring instruments for it permits the researcher to "see" what content and method combinations are to achieve each goal.

Worry little or not at all about "controls" or statistics. The suggested purpose is to explore combinations of methods utilizing the vast wealth of mass media with which we are surrounded. This may mean bringing the media into the classroom, or it may mean supplementing your teaching with outside assignments. It means, at any rate, that we keep ourselves aware, week to week and day by day, of the fare available, and furthermore, that we allow our imagination to be free to devise ways of teaching well.

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CARLTON M. SINGLETON, PAUL B. DIEDERICH, AND WALTER HILL

The Classroom Teacher as a Researcher

Classroom centered research is not new. Educational research has always been concerned with the teaching-learning process in the places where it occurs. Each classroom is a possible research laboratory. The important corollary is that each classroom teacher is a possible researcher.

Educational research has taken on a false aura of grey-bearded, library-centered, mysticism. It is not mysticism. It is not mysterious, nor need it be library-centered, nor does the researcher need to be grey-bearded. Much of what is important in educational philosophy, psychology, and methodology has come from the ideas and hunches of classroom teachers. Tryouts of their ideas have formed the bases for larger studies which in turn have become the cornerstones of our teaching practices.

The teaching of English is in desperate need of the kind of research that is best done in the individual classroom. The plain fact is that the average recipient of today's English teaching does not use English skillfully. It is the task of teachers of English to develop in all students the ability to read intelligently, to write clearly, and spell correctly, to listen well, and to speak effectively. That these attributes are not shared by all adults is obvious. Considerable debate ranges as to whether students are more skilled or less skilled than they were fifty years ago. This is unimportant. It is important that large numbers of our graduates at any level do not read intelligently, write clearly, listen well, or speak effectively. The number is large because we do not know how to develop these abilities as well as is desirable or necessary.

Finding out how to teach better is the task traditionally set for educational research. In our present ignorance it is more specifically the job of the classroom teacher. Only at the classroom teacher level do we possess the man-power and the facilities to do the vast amount of preliminary work necessary to effect any real improvement in the teaching of English.

The methods used to teach English now differ little, if at all, from the methods in vogue at the turn of the century. (The teaching of reading and spelling in the elementary school are exceptions.) We use the same methods, not because they have demonstrated their effectiveness, but because better ones have not yet emerged from the cauldron of preliminary tryout and rigorous investigation.

The formation and tryout of ideas form the very core of educational research. If the desperately needed improvement in methods of teaching is to come, the direction of improvement must be based upon research. To be effective and useful, such research must be based on good ideas that have withstood the test of preliminary tryout.

The challenge is great. The need is crucial, but despite this obvious need, classroom teachers are notoriously unwilling to research. The unwillingness may be traced to a variety of fears, most of which fit under one of two headings: the fear that the teacher is not fulfilling her responsibilities towards her students; and the fear of research itself.

Dr. Singleton is at Paterson State College. Dr. Diederich is in the research division of the Educational Testing Service. Dr. Hill is at the University of Oregon.

The responsibility of a teacher to her students is to guide them to the most efficient learning of which they are capable. Such guidance must necessarily be different for different individuals, else all we have learned and subscribed to concerning individual differences is false. It is unfortunate that this basic and simple responsibility is often forgotten in the idea that certain material "must be covered" and/or that the colleges "require certain things." The idea that a course of study is the total diet for any group at any age directly opposes the truth of individual differences. It leads to the shocking pattern of the teacher who plunges into her course of study in September and emerges from the end, in June, triumphant and alone.

Guiding students to efficient learning requires that the teacher search out and apply variations in teaching methodology. It is because this guidance is necessarily different for each individual that the teacher will always be essential to the teaching process. If the course of study contained all that was necessary for each student in a group then the teaching machine could supplant, rather supplement, the teacher.

The classroom teacher must, to fulfill her appointed task, search out and apply new techniques of teaching. Such endeavor is precisely the kind of educational research this chapter is proposing. To make the ideal of classroom research a reality, it is necessary to add only the activities of describing and evaluating the process. This can and should be as simple as writing a grocery list or taking attendance.

The fact that a full-scale educational investigation designed to test a major hypothesis is involved, time-consuming and difficult to conduct does not affect teacher-directed, classroom centered research. These are two separate and distinct *levels* of research. At one level the classroom teacher tries out a new idea or technique, evaluates the results, and keeps records of the experiment. At another level a research specialist notes the findings, forms a hypothesis and proceeds to test that hypothesis as rigorously as he knows how. It is apparent that one level is as important as the other, since the second relies so obviously on the first.

Thus, the fears of teachers regarding research are groundless. Our responsibility to our students demands that we do research rather than avoid it. The kind of research we should do is simple, not rigorous, but it is, nonetheless, essential for guiding the total process.

The requisites for good classroom-centered, teacher-directed, research are three in number: an idea; a statement of the idea; and a method of determining the effect of the procedure suggested by the idea.

The idea may come from anywhere. It need not be original. In fact, it has been said often that no new ideas exist in education but simply old ideas in new words. The idea may come directly from another teacher's experience, either at first hand or through a journal. It may be an adaption of another's idea. It may come from sensing an educational use of a technique used in business or another profession. The source of the idea is unimportant. It is important that the teacher find an idea that in her judgment is worth trying.

Stating the idea clearly is the next step. It should be phrased as a simple purpose usually in the form of a question. Some examples follow:

1. Would my pupils make fewer errors in punctuation and capitalization if they wrote three 100-word themes each week instead of one 300-word theme?
2. Would my pupils' handwriting improve faster through five minutes of practice each morning or one 30-minute period

once a week?

3. Would my pupils make fewer spelling errors in their free writing if I counted such spelling errors in setting their spelling grade?
4. Would my pupils make better progress in written expression by working as parts of teams of two or three than by writing independently?
5. Would my class make faster progress in spelling by mastering 5 words each day than they make using the pattern of 25 words studied in one list all week?
6. Would my class do more independent reading if I read them portions of books than if I assigned them to read a book a month?

These questions are simple and one may well wonder why the answers are not already known. The answers are not known because sufficient research has not been done. The answer to any one may be either yes or no depending upon other circumstances. It might be yes for particular students in a particular place. It might be no for students with differing backgrounds.

The simplicity of these questions makes apparent two important characteristics that distinguish educational research from research in other areas. The teaching-learning process is so complicated that very little is known and established as fact concerning it. The educational researcher is forced to work with little bits of the final results in an effort to establish facts to guide further research. The second characteristic is that educational research, since it is concerned with living people who lead their own lives away from the experiment most of the time, can never control all the variables that may be affecting the experiment. In contrast to a typical educational experiment, a biological or chemical experiment starts with the materials carefully provided for in a lock and key environment that effectively rules out of the experiment any outside interference. The educational experimenter must realize that in his research the results he obtains may have been caused by something completely outside of his experiment. Consequently, a part of the design of full scale educational research must always be provision for duplicating the experiment under widely differing environmental conditions. Only as the technique works anywhere and with anyone can we be sure that the technique itself is important.

Each of the questions posed above are not only simple but posed in terms of the teacher's own class. So stated, the results apply only to the particular class but the value to the profession lies in the possibility that many teachers might reach the same results with many classes. This is called either duplication or replication of research. Classroom teachers can perform a great service to their profession by repeating experiments tried successfully elsewhere, fitting them to the classroom environment within which they are teaching.

The questions listed are samples of the kind of classroom-teacher designed research that is most worthwhile. They are limited in scope as they must be if the results are to be valuable in face of the classroom-group limitation. This does not mean that problems with a broader scope are valueless—it means simply that problems with a larger scope have to be repeated a great many more times before their results can be considered important. As a general rule the smaller the scope the more likely it is that a single classroom experiment offers indications of lasting value.

Another virtue of simplicity in the statement of a problem for classroom research is that the method of technique to be tried is apparent. Ideally, another teacher should be able to tell from the statement

alone the basic technique to be attempted. A simple way to check the clarity of a research statement is to ask another teacher to read it and then tell you what she thinks you are going to do. If what she suggests is alien to your plan rewrite your statement.

The third requirement of a good research study is evaluation—finding out what happened. One needs to find out whether the technique worked—did the students learn what they were supposed to or did their behavior change in the way we had hoped? Then one needs to find out whether or not the new method worked better than some other means.

The simplest way to find out whether or not students have learned something is to test them. If tests are available that cover the exact material taught then they can be used. More often the classroom teacher has to build her own tests. Test building is so important a task that a whole chapter has been devoted to it in this bulletin. The basic premise of that chapter is that teachers have time available, through a succession of classes or tests, to build a thoroughly reliable and valid measure. Much of the material and discussion of that chapter is applicable here, particularly if the teacher-researcher can repeat her study with successive groups. However, for the one time study the first attempt at a teacher made test must be used and therefore it should be built as carefully as possible. Teachers have been building and relying upon their own tests for years.

Basically, the building of a test over a narrow range of subject matter requires the inclusion of as many facets of the learning as there are. The best classroom test is an exact inventory of all that has been taught. The validity of such a test is reasonably assured if the total content is represented. Generally this ideal is not achieved because teachers tend to regard testing time as non-teaching time and therefore their tests are too brief. Testing time is actually learning time, particularly so if the tests are corrected in class so that each student learns where he went wrong and what he should have done. The recommendation is, then, that the teacher made test be as comprehensive as possible even if it means testing over two or three classroom periods.

Of the sample questions proposed only number 5—the one concerned with spelling words in a spelling list—is susceptible to teacher made test evaluation. Number 2—the handwriting question—could be resolved by using a standardized measure against which to grade handwriting samples. The evaluation would be improved by collecting and grading handwriting samples from a variety of situations including occasions when the students were unaware that their handwriting was to be graded.

The other questions posed call for observations of behavior. Each one suggests that the teacher count errors or books read or some other easily collected data. Such counts should be made both before and after the experiment. Error counts can usually be reduced to a so-many-errors per 100 written words base so that different samples can be compared directly. Such counts serve to answer the first question posed to any evaluation—has the technique accomplished the expected result?

The second facet of evaluation—has the experimental technique done the job better than another method—can be accomplished only partially in the classroom-centered, teacher-directed study. The importance of outside factors is larger when two or more methods are compared. The research specialist allows for this by carefully controlling all the factors he can and then attempts to control the rest by statistical procedures.

The best thing the classroom teacher can do is attempt to evaluate her results against

"normal" expectancy. She can define normal expectancy as the progress her last year's group made or the progress this year's group has made during a previous period. Such progress is determined by results on achievement tests. If she has a group with a normal range and mean of mental ages the assumption is reasonable. Most of the questions posed earlier are concerned with learning that is measured in achievement tests. The mechanics of written language and spelling are usually measured directly in such a test. If this year's group makes 18 to 20 months gain against the normal expectancy of 12 months gain then the indications are that this year's teaching was more successful than last year's. Beyond this rather mild statement no further conclusions are warranted in the single classroom experiment. If the teacher secures the same results in several succeeding years then somewhat stronger claims can be made although they still apply only to the type of group the teacher meets. If her success with a particular technique causes other teachers to try it and they in turn meet with success then even stronger claims are possible. Each success, whether it be in an ensuing year by the same teacher or in other classrooms by other teachers, makes the results more and more conclusive. This duplication or replication of an experiment can be the strongest possible kind of research because good results time after time and in place after place makes possible the conclusion that it is the technique itself that is strong despite the many factors which may have influenced it.

Teacher-directed, classroom-centered, research is important. As pressures upon us to teach more and more in less time continue to increase, such research becomes crucial. The classroom teacher must search for ways of using teaching time more efficiently. We are confronted with the fact the general level of competence in English is low. It is too much to expect that the remedy will come from the handful of people on college campuses who devote their full time to research in English. It must come from the classroom teachers who have accepted responsibility for teaching English.

The kind of research that is necessary is directly in line with the teaching philosophy general in our schools. It is the searching out of the particular technique, or combination of techniques, that will best fit the individuals in a class.

The formal requirements of scientific investigation are out of place in this kind of research. All that is necessary is an idea, a statement of the idea, and simple evaluation. If the results suggest that the idea is good then is the time to consider a more formal evaluation.

There are many ways in which this simple kind of research can be expanded as individual teachers become research-minded. Another teacher in the same school system may become interested in a direct comparison of method. Co-operative research across a whole school, or school-system, is an excellent way to broaden the base of a study. A mutual project in which two or more teachers who teach in different schools may try an idea together but on differing populations, can be valuable. The cooperation of a University in broadening a project by enlisting other teachers and by providing statistical and technical aid can turn a simple study into an extremely important guidepost to the mysteries of the teaching-learning process.

But basically it is the simple study which is important even with its limitations because so many thousands can be done in the time it takes to get one broad research study completed. The challenge offered by the present status of the teaching of English is one that can be successfully met only as each of us, who has accepted the responsibility of teaching English, realizes that research is part of that responsibility.

CARLTON M. SINGLETON

Needed Research in the Language Arts

No one can know the extent of the truths that educational research will disclose in the future. Yet it is the purpose of this article to suggest the direction of that research. The record of the past fifty years of research is impressive in its bulk and its findings. It contains many suggestions for future research and this article could well be a detailing and organization of such suggestions.

However, an examination of the teaching of English in today's schools suggests a need for more than a compilation of research suggestions. Despite the findings of the past, today's teacher of English must be shocked when he realizes how little we know. We are still unable to describe the teaching-learning process accurately; to guide students to a full and efficient use of their talents; or even to describe and delimit that which must be taught. The easy answer, postulating a semi-automatic time-lag between laboratory and classroom, is not sufficient. The true answer is that we know little more today about the teaching of English than we knew fifty years ago.

Usage, grammar, and composition are taught now as they were in 1910 despite prettier textbooks and better trained teachers. Our students do not write very well now as they did not in 1910. There may be some progress implicit in the fact that we are now teaching a much higher proportion of the general population to write not very well.

Dr. Singleton is Professor of English Education at Paterson State College, Wayne, New Jersey and Chairman of the 1961 National Conference on Research in English Yearbook Committee.

Our students still approach literature with a scapel and learn to dislike its parts never having experienced the whole, despite the fact that an Olivier can acquaint millions with the names Elsinore and Agincourt.

We have limited and streamlined the spelling content we teach and revised our teaching methods yet children do not learn to spell any better than they did in 1910, if as well. Our teaching of reading has changed markedly—unquestionably for the better—yet no one can accept comfortably the realization that hundreds of children still have trouble learning to read.

Research, praiseworthy as it is, has demonstrated but little of that which we need to know to teach English well. If the present rate of progress is to continue it may well be a thousand years hence before much improvement in our teaching is evident. We can't wait. We need a miracle.

Fortunately miracles of research do occur. We have seen the timetable of research in other fields accelerated. Why has educational research limped so slowly? For fifty years we have nibbled away at the questions that perplex us, choosing for examination only those that fitted neatly into known research design and that could be answered within the framework of statistical theory. These limitations must be removed. Some are in the process of removal now. We are all acquainted with the rapid advances made in the utilization of machines for data processing. So far this utilization has been primarily in the direction of speeding processes which we have known how to do. The time is practically upon us when a fuller appreciation of machines will indicate methods of pro-

cedure unknown to us at present. As the limitations of statistical analysis are removed the limitations of research design will also be removed. It is to this day and this miracle that our thinking should be directed in thinking of the research of the future. It is time for us to refocus on the questions that have perplexed every English teacher. As we think upon these questions and make known our needs the methods of research and analysis needed will become known. We have seen demonstrated the miracles of research that happen when the need and concern become great enough. We have seen the polio vaccine developed and men go into orbit. The teaching of English may soon be considered as important. In preparation for this day we need to channel our best thinking along lines of broad inquiry. Inevitably some facets of these broad questions will appear that are susceptible to attack by known methods of research and these can be the subjects of study immediately. Others will demand new tools of research and these will serve both to guide our research and that of the specialists in research design.

The questions that have always perplexed teachers of English often appear absurdly simple. There is no attempt here to list them in any order of priority. The list could be added to very easily and the wording of many could be changed markedly. The single unifying characteristic is that they are all questions that cannot be answered now with reference to fact although most have been answered for instructional purposes by consensus of opinion. For listing convenience they have been grouped about various topics.

Reading:

How should the word analysis techniques be combined for fastest progress?

What individual differences affect learning to read and how can their pattern be determined easily for individualization of instruction?

How can we develop in all children a true liking for reading?

How can we develop the ability to choose and use a reading method suitable for the material to be read and the purpose for which it is read?

How much faster could we read and under what conditions?

Composition:

How can we judge a composition?

How can we teach organization, unity, and coherence?

Literature:

What is necessary for an appreciation of literature?

How can we develop an appreciation of literature in our students?

Spelling:

What combination of abilities enables some children to spell perfectly?

Can we develop spelling ability directly?

Handwriting:

Can we develop a handwriting style, both legible and easy, that will remain a dependable tool?

Usage:

While change is inevitable, could we develop a system that would enable teachers, books, and speech patterns to stay closer to one another?

Taken together these questions do appear less than earth-shaking. Undoubtedly there are others as important or more important. Nevertheless answers to these questions would advance the teaching of English. Since they are so basic to our teaching we have had to answer them as best we can every time we face a teaching situation. The correct answers would bring us closer to the goal of every English teacher.